European Journal of Applied Microbiology and Biotechnology

Volume 5 · 1978

Editors

A. L. Demain Department of Nutrition and Food Science
Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA

A. Fiechter Institut für Mikrobiologie der ETH. Weinbergstraße 38, CH-8006 Zürich

R. M. Lafferty Institut für Biochemische Technologie, Technische Hochschule Graz, Schlögelgasse 9, A-8010 Graz

H. J. Rehm (Editor in Chief) Institut für Mikrobiologie, Universität Münster, Tibusstraße 7–15, D-4400 Münster (Westf.)

W. Schmidt-Lorenz Professur für Lebensmittel-Mikrobiologie der ETH Tannenstraße 1, CH-8006 Zürich

W. Schönborn Battelle Institut, Am Römerhof 35, D-6000 Frankfurt/M.

F. Wagner Lehrstuhl für Biochemie und Biotechnologie, TU Braunschweig, Mascheroder Weg 1, D-3300 Braunschweig-Stöckheim

M. H. Zenk Lehrstuhl für Pflanzenphysiologie, Ruhr-Universität, Universitätsstraße 150, D-4630 Bochum-Querenburg

Advisory Editors

B. Atkinson, Manchester
W. Barz, Münster
H. Blachère, Dijon
N. Blakebrough, Birmingham
H. Dellweg, Berlin
H. Diekmann, Hannover
P. Dunnill, London
K. Esser, Bochum
D. E. Eveleigh, New Brunswick
W. Frommer, Wuppertal
S. Fukui, Kyoto
W. Goebel, Würzburg
W. Harder, Groningen
C. W. Hesseltine, Peoria
I. Horváth, Budapest
V. Johanides, Zagreb
K. Kieslich, Berlin
N. W. F. Kossen, Delft
W. Kurylowicz, Warszawa
M. Linko, Helsinki
H. Metz, Darmstadt
D. A. A. Mossel, Utrecht
A. Oppermann, Frankfurt/Main
J. Overbeck, Plön
M. Reuß, Berlin
J. C. Senez, Marseille
H. J. Sinell, Berlin
G. K. Skryabin, Moskwa
H. Suomalainen, Helsinki
G. T. Tsao, West Lafayette
H. Zähner, Tübingen

Springer International

The exclusive copyright for all languages and countries including the right for photomechanical and any other reproductions, also in microform, is transferred to the publisher.
The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag Berlin Heidelberg New York
Printed in Germany by Beltz Offsetdruck, 6944 Hemsbach/Bergstr.
© by Springer-Verlag Berlin Heidelberg 1978

Contents

Bioengineering

T. P. Kristensen: Continuous Single Cell Protein Production From *Cellulomonas* sp. and *Candida utilis* Grown in Mixture on Barley Straw 155
R. Larsen, L. Kjaergaard: A Structured Model for Microbial Growth and Product Formation 177
R. J. Mehta, L. R. Fare, D. J. Newman, C. H. Nash: Actinomycin D Inactivating Enzymes From *Actinoplanes missouriensis* and Several Other Members of the *Actinoplanaceae* Family 165
W. Pache: Degradation of β-Lactam Antibiotics by Polyacrylamide-Entrapped β-Lactamase-Producing *E. coli* Cells 171

Biotechnology

S. Aiba, M. Matsuoka: Citrate Production From n-Alkane by *Candida lipolytica* in Reference to Carbon Fluxes in vivo 247
D. Herr, F. Baumer, H. Dellweg: Purification and Properties of an Extracellular β-Glucosidase From *Lenzites trabea* 29
A. Kimura, Y. Tatsutomi, N. Mizushima, A. Tanaka, R. Matsuno, H. Fukuda: Immobilization of Glycolysis System of Yeasts and Production of Cytidine Diphosphate Choline 13
T. Kokubu, I. Karube, S. Suzuki: α-Amylase Production by Immobilized Whole Cells of *Bacillus subtilis* 233
T. P. Kristensen: Continuous Single Cell Protein Production From *Cellulomonas* sp. and *Candida utilis* Grown in Mixture on Barley Straw 155
R. Larsen, L. Kjaergaard: A Structured Model for Microbial Growth and Product Formation 177
I. S. Maddox, R. Chong: Hydrolysis of Glycocholic Acid by Fungi 241
R. J. Mehta, L. R. Fare, D. J. Newman, C. H. Nash: Actinomycin D Inactivating Enzymes From *Actinoplanes missouriensis* and Several Other Members of the *Actinoplanaceae* Family 165
P. Monsan: Influence of the Conditions of Trypsin Immobilization Onto Spherosil on Coupling Efficiency 1
W. Pache: Degradation of β-Lactam Antibiotics by Polyacrylamide-Entrapped β-Lactamase-Producing *E. coli* Cells 171
J. Soimajärvi, M. Pursiainen, J. Korhonen: Sulphate-Reducing Bacteria in Paper Machine Waters and in Suction Roll Perforations 87
A. Tanaka, T. Hagihara, T. Kamiryo, M. Mishina, S.-I. Tashiro, S. Numa, S. Fukui: *Candida lipolytica* Mutants Defective in an Acyl-CoA Synthetase. Fatty Acid Composition of Cells Grown on Odd-chain *n*-Alkanes 79
A. Tanaka, S. Yasuhara, G. Gellf, M. Osumi, S. Fukui: Immobilization of Yeast Microbodies and the Properties of Immobilized Microbody Enzymes 17

Food Microbiology

B. Hugues, M. Plissier, A. Pagliardini, J. L. Plantat, J. Gaissa: Experimental Study on the Growth of *Salmonella* and Coli-aerogenes Bacteria in Pure and Mixed Cultures, in a Fermentor, in Two Different Enrichment Media: Sodium Selenite and Tetrathionate Broth 133
J. P. P. M. Smelt, H. Haas: Behaviour of Proteolytic *Clostridium botulinum* Types A and B Near the Lower Temperature Limits of Growth 143

Industrial Microbiology

C. Ball, A. J. Lawrence, J. M. Butler, K. B. Morrison: Improvement in Amyloglucosidase Production Following Genetic Recombination of *Aspergillus niger* Strains 95
M. Binder, G. Meisenberg: Microbial Transformation of Cannabinoids. Part 2: A Screening of Different Microorganisms 37
J. A. Brierley, P. R. Norris, D. P. Kelly, N. W. Le Roux: Characteristics of a Moderately Thermophilic and Acidophilic Iron-Oxidizing *Thiobacillus* 291
G. Cerny: Studies on the Aminopeptidase Test for the Distinction of Gram-Negative From Gram-Positive Bacteria 113

A. R. Coco, J. M. Kornfeld: Evidence of an Endogenous Germinant in Spores of a Strain of *Dictyostelium purpureum* 129
L. Eggeling, H. Sahm: Derepression and Partial Insensitivity to Carbon Catabolite Repression of the Methanol Dissimilating Enzymes in *Hansenula polymorpha* 197
H.-P. Fiedler, J. Sauerbier: Metabolic Products of Microorganisms, 165th Communication. Isolation and Quantitative Determination of Siderochromes 51
T. Gregersen: Rapid Method for Distinction of Gram-Negative From Gram-Positive Bacteria 123
B. Hoffmann, H. J. Rehm: Degradation of Long-Chain n-Alkanes by Mucorales. IV. Lipid Formation and Fatty Acid Composition of *Absidia spinosa*, *Cunninghamella echinulata*, and *Mortierella isabellina* Grown on Glucose and Some n-Alkanes 189
H. Horitsu, M. Takagi, M. Tomoyeda: Isolation of a Mercuric Chloride-Tolerant Bacterium and Uptake of Mercury by the Bacterium 279
J. A. Hossack, I. Spencer-Martins: Lipid Composition of the Yeast *Lipomyces kononenkoae* 273
K.-J. Hutter, H. E. Eipel: Protein Content Distributions in Populations of Baker's Yeast 203
K.-J. Hutter, H. E. Eipel, H. Hettwer: Rapid Determination of the Purity of Yeast Cultures by Flow Cytometry 109
C. P. Kubicek, M. Röhr: The Role of the Tricarboxylic Acid Cycle in Citric Acid Accumulation by *Aspergillus niger* 263
O. Schmidt, K. Walter: Succession and Activity of Microorganisms in Stored Bagasse 69
W. Schönborn, H. Hartmann: Bacterial Leaching of Metals From Sewage Sludge 305
A. Shinmyo, I. K. Davis, F. Nomoto, T. Tahara, T. Enatsu: Catabolite Repression of Hydrolases in *Aspergillus niger* 59
R. J. Thornton: Investigations on the Genetics of Foaming in Wine Yeasts 103
O. H. Tuovinen: Inhibition of *Thiobacillus ferrooxidans* by Mineral Flotation Reagents 301
H. Wang, D. I. C. Wang, C. L. Cooney: The Application of Dynamic Calorimetry for Monitoring Growth of *Saccharomyces cerevisiae* 207

Microbiology of Sewage and Industrial Wastes

G. Bågstam: Population Changes in Microorganisms During Composting of Spruce-Bark. I. Influence of Temperature Control 315
J. C. Block, J. C. Joret, M. Morlot, J. M. Foliguet: Persistence of Poliovirus 1 During the Freezing-Thawing of Hydroxide Sludges From a Water Treatment Plant Under Laboratory Conditions 331
Z. Filip: Decomposition of Polyurethane in a Garbage Landfill Leakage Water and by Soil Microorganisms 225
W. K. Jung, H. J. Kutzner: Microbiologic Problems Associated With Closed Process Water Systems in the Paper Industry 215